

***Amendments to the Claims***

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-20. (*Canceled*)

21. (*Currently Amended*) A system for producing a pulse code modulation (PCM) signal, comprising:

a first filter configured to produce an in-phase signal  $I(n)$  from a secondary audio program (SAP) signal;

a second filter configured to produce a quadrature-phase signal  $Q(n)$  from the in-phase signal  $I(n)$ ;

a FM demodulator configured to produce a FM demodulated signal substantially equal to  $Z(n)/X(n)$ , wherein  $Z(n)$  and  $X(n)$  are functions of  $I(n)$  and  $Q(n)$ , the FM demodulator including a denominator device that estimates a value  $1/X(n)$  based at least in part on a prior estimated value of  $1/X(n)$  and a variable transition speed of  $X(n)$ ; and

a third filter configured to produce the PCM signal from the FM demodulated signal,

wherein a control signal is used to change the variable transition speed of  $X(n)$ .

22. (*Previously Presented*) The system of claim 21, wherein  $Z(n)$  is substantially equal to  $[I(n)Q'(n)-I'(n)Q(n)]$  and  $X(n)$  is substantially equal to  $[I^2(n)+Q^2(n)]$ .

23. (*Original*) The system of claim 21, wherein the SAP signal is a constant magnitude signal, a sine wave, or a cosine wave.

24. (*Original*) The system of claim 21, wherein the first filter is a band pass filter.

25. (*Original*) The system of claim 21, wherein the second filter is a Hilbert filter.

26-31. (*Canceled*)

32. (*Previously Presented*) The system of claim 21, wherein the denominator device estimates the value  $1/X(n)$  based at least in part on the prior estimated value of  $1/X(n)$  plus an error value.

33. (*Previously Presented*) The system of claim 32, wherein the error value is substantially equal to  $[1-X(n)/X(n-1)]$ .

34. (*Currently Amended*) The system of claim 33,  
wherein the error value is scaled by a value of a scaling coefficient before  
being added to the prior estimated value of  $1/X(n)$ , and  
wherein the value of the scaling coefficient is different from the error value.

35. (*Currently Amended*) The system of claim 34, wherein the value of the scaling coefficient is based on the variable transition speed of  $X(n)$ .

36. (*Currently Amended*) A system for producing a pulse code modulation (PAM) signal, comprising:

a first filter configured to produce an in-phase signal I(n) from a secondary audio program (SAP) signal;

a second filter configured to produce a quadrature-phase signal Q(n) from the in-phase signal I(n);

a FM demodulator configured to produce a FM demodulated signal substantially equal to  $Z(n)/X(n)$ , wherein  $Z(n)$  and  $X(n)$  are functions of I(n) and Q(n), the FM demodulator including a denominator device that estimates a value  $1/X(n)$  based at least in part on a prior estimated value of  $1/X(n)$  and an error value substantially equal to  $[1-X(n)/X(n-1)]$ ; and

a third filter configured to produce the PCM signal from the FM demodulated signal,

wherein the error value is scaled by a value of a scaling coefficient based on [[the]] a variable transition speed of X(n) before being added to the prior estimated value of  $1/X(n)$ .

wherein the value of the scaling coefficient is different from the error value,  
and

wherein a control signal is used to change the value of the scaling coefficient  
based on the variable transition speed of X(n).